

IN THE CLAIMS

1. (Currently amended) A method of determining at least one candidate patch for human faces in a color graphic image, comprising:

determining a first area of the color graphic image wherein a color gradient has a low value;

determining a second area of the color graphic image wherein an intensity value has a high value;

performing a logical AND on said first area and said second area to determine ~~create~~ a third area of the color graphic image; and

selecting portions of said third area with suitable hue saturation to form said at least one candidate patch.

2. (Original) The method of claim 1, wherein said determining said first area uses a first threshold value comparison.

3. (Original) The method of claim 2, wherein said first threshold value is determined by normalization.

4. (Original) The method of claim 1, wherein said determining said second area uses a second threshold value comparison.

5. (Original) The method of claim 4, wherein said second threshold is determined by normalization.

6. (Original) The method of claim 1, further comprising eroding said third area.
7. (Original) The method of claim 6, wherein said eroding is morphological.
8. (Original) The method of claim 1, further comprising fitting an ellipse to one of said at least one candidate patch.
9. (Original) The method of claim 8, further comprising determining if said ellipse is a bad fit to said one of said at least one candidate patch.
10. (Original) The method of claim 9, further processing said one of said at least one candidate patch when said ellipse is a bad fit.
11. (Original) The method of claim 10, further comprising determining if said one of said at least one candidate patch is too smooth.
12. (Currently amended) A system configured to determine at least one location of a human face in a color graphic image, comprising:
a color gradient map of the color graphic image configured to indicate true where a color gradient has a low value;
an intensity map of the color graphic image configured to indicate true where an intensity value has a high value;

a combined map configured to indicate true where said color gradient map is true and said intensity map is true; and

at least one candidate patch selected from said combined map, wherein said candidate patches each have suitable hue saturation.

13. (Original) The system of claim 12, wherein said color gradient map includes a first threshold.

14. (Original) The system of claim 13, wherein said first threshold is determined by normalization.

15. (Original) The system of claim 12, wherein said intensity map includes a second threshold.

16. (Original) The system of claim 15, wherein said second threshold is determined by normalization.

17. (Original) The system of claim 12, wherein said combined map includes an eroded boundary.

18. (Original) The system of claim 17, wherein said boundary is morphologically eroded.

19. (Original) The system of claim 12, further comprising an ellipse fitted to said at least one candidate patch.

20. (Original) The system of claim 19, wherein said ellipse includes a degree of fit measure.

21. (Original) The system of claim 20, wherein said at least one candidate patch is marked for further processing when said degree of fit is bad.

22. (Original) The system of claim 21, further comprising a candidate patch examiner configured to determine whether said at least one candidate patch is too smooth.

23. (Currently amended) A machine-readable medium having stored thereon instructions for processing elements, which when executed by said processing elements perform the following:

determining a first area of the color graphic image wherein a color gradient has a low value;

determining a second area of the color graphic image wherein an intensity value has a high value;

performing a logical AND on said first area and said second area to determine ~~create~~ a third area of the color graphic image; and

selecting portions of said third area with suitable hue saturation to form at least one candidate patch.

24. (Previously presented) The machine-readable medium of claim 23, wherein said determining said first area uses a first threshold value comparison.

25. (Previously presented) The machine-readable medium of claim 24, wherein said first threshold value is determined by normalization.

26. (Previously presented) The machine-readable medium of claim 23, wherein said determining said second area uses a second threshold value comparison.

27. (Previously presented) The machine-readable medium of claim 26, wherein said second threshold is determined by normalization.

28. (Previously presented) The machine-readable medium of claim 23, further comprising eroding said third area.

29. (Previously presented) The machine-readable medium of claim 28, wherein said eroding is morphological.

30. (Previously presented) The machine-readable medium of claim 23, further comprising fitting an ellipse to one of said at least one candidate patch.

31. (Previously presented) The machine-readable medium of claim 30, further comprising determining if said ellipse is a bad fit to said one of said at least one candidate patch.

32. (Previously presented) The machine-readable medium of claim 31, further processing said one of said at least one candidate patch when said ellipse is a bad fit.

33. (Previously presented) The machine-readable medium of claim 32, further comprising determining if said one of said at least one candidate patch is too smooth.

34. (Currently amended) A apparatus comprising:

a processor coupled to a memory through a bus; and

91 a detection process executed by the processor from the memory to cause the processor to determine a first area of a color graphic image wherein a color gradient has a low value;

determine a second area of the color graphic image wherein an intensity value has a high value;

perform a logical AND on said first area and said second area to determine ~~create~~ a third area of the color graphic image; and

select portions of said third area with suitable hue saturation to form ~~said~~ at least one candidate patch.

35. (Previously presented) The apparatus of claim 34, wherein the detection process to further cause the processor, when determining said first area, to use a first threshold value comparison.

36. (Previously presented) The apparatus of claim 35, wherein said first threshold value is determined by normalization.

37. (Previously presented) The apparatus of claim 34, the detection process to further cause the processor, when determining said second area, to use a second threshold value comparison.

38. (Previously presented) The apparatus of claim 37, wherein said second threshold is determined by normalization.

39. (Previously presented) The apparatus of claim 34, the detection process to further cause the processor to erode said third area.

40. (Previously presented) The apparatus of claim 39, wherein said eroding is morphological.

41. (Previously presented) The apparatus of claim 34, the detection process to further cause the processor to fit an ellipse to one of said at least one candidate patch.

42. (Previously presented) The apparatus of claim 41, the detection process to further cause the processor to determine if said ellipse is a bad fit to said one of said at least one candidate patch.

43. (Previously presented) The apparatus of claim 42, the detection process to further cause the processor to process said one of said at least one candidate patch when said ellipse is a bad fit.

44. (Previously presented) The apparatus of claim 43, the detection process to further cause the processor to determine if said one of said at least one candidate patch is too smooth.

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45. (Currently amended) A apparatus, comprising:

a means for determining a first area of a color graphic image wherein a color gradient has a low value;

a means for determining a second area of the color graphic image wherein an intensity value has a high value;

a means for performing a logical AND on said first area and said second area to determine create a third area of the color graphic image; and

a means for selecting portions of said third area with suitable hue saturation to form at least one candidate patch.
